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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/712,629	11/14/2000	Frank Leymann	DE919990052US1	3744

7590 07/27/2004  
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EXAMINER
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AVELLINO, JOSEPH E

ART UNIT	PAPER NUMBER
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2143

DATE MAILED: 07/27/2004

5

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/712,629

Applicant(s)

LEYMANN ET AL.

Examiner

Joseph E. Avellino

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-15, 17-23, 25-31, 33-39, 41-48 is/are rejected.
- 7) ☒ Claim(s) 8, 14, 16, 24, 30, 32, 40 and 46 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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### **DETAILED ACTION**

1. Claims 1-48 have been presented for examination with claims 1, 17, and 33 independent.

### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Allowable Subject Matter***

3. Claims 8, 14, 16, 24, 30, 32, 40, and 46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 10-14, 26-30, 42-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Claims 11-14, 27-30, 43-46 recite the limitation "said server-monitor". There is insufficient antecedent basis for this limitation in the claim. Numerous references to

"said server-monitor" have been made in other dependent claims, however these claims are not in the chain of claims and are not considered. Correction is required.

7. Claims 10, 26, and 42 recite the limitation "work load and/or said application-sever observed response time". The wording is indefinite since it cannot be determined if the workload and the application-server observed response time, or the workload or the application-server observed response time is meant. For examination purposes, it will be considered that the latter is meant. Correction is required.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 17, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Banks et al. (GB 2 336 449) (hereinafter Banks).

9. Referring to claim 1, Banks discloses a computerized method of workload balancing for improved availability within a multitude of applications-servers and a multitude of application-clients interconnected with said application-servers by a communication network, said method comprising:

caching within an application-client, availability data of a subset of currently active application-servers as potential target application-servers (p. 6, lines 1-5);

selecting by execution of an application-request by said application-client, an application-server from said subset based on a load-balancing decision (i.e. which server is available to handle the extra load of another transaction to process) of said application-client as target application-server and is sending said application-request to said target application-server (p. 6, lines 30-40).

10. Claims 17, and 33 are rejected for similar reasons as stated above.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 9, 25, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banks.

13. Referring to claim 9, Banks discloses the invention substantively as described in claim 1. Banks does not specifically disclose that the selection of the application-server by the application-client is selected randomly. However Banks does disclose that any common workload balancing algorithm may be used to select which server may be used (p. 7, 38-39) and it is well known that a random selection uniformly dispersed throughout the entire entity is used often for assignment of tasks to servers (i.e. round-robin is an offshoot of this feature, it is just that the randomization is done to a prioritized listing of servers). Therefore it would have been obvious to one of ordinary skill in the art to modify the teaching of Banks to provide a random selection of the target application-server in order to provide another workload balancing algorithm in order to execute tasks more efficiently.

14. Claims 25, and 41 are rejected for similar reasons as stated above.

Claims 2-7, 11-13, 18-23, 27-29, 31, 34-39, 43-45, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banks in view of Allon et al. (USPN 5,539,883) (hereinafter Allon).

15. Referring to claim 2, Banks discloses the method of workload balancing substantively as described in claim 1. Banks does not specifically disclose that the availability data is retrieved from a cluster database which stores the availability data for the currently active application-servers. In analogous art, Allon discloses another method which stores availability data on each computer and periodically distributes this availability data which it is logically linked and receives from the computers similar such information in order to update its own information (i.e. each computer acts as a cluster database for another computer) (e.g. abstract). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Allon with Banks to efficiently determine which computers in the network are able to handle and accept extra processing load while keeping system processing overhead low as supported by Allon (abstract; col. 4, lines 9-11).

16. Referring to claim 4, Banks discloses the method of workload balancing substantively as described in claim 1. Banks does not disclose retrieving said subset of currently active application-server by issuing a retrieve request to a server-monitor which monitors the servers. Allon discloses issuing a retrieve request to a server-monitor (i.e. another node) which monitors the servers activity status (col. 9, lines 44-

55). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Allon with Banks to efficiently determine which computers in the network are able to handle and accept extra processing load while keeping system processing overhead low as supported by Allon (abstract; col. 4, lines 9-11).

17. Referring to claim 5, Banks discloses the method of workload balancing substantively as described in claim 1. Banks does not disclose selecting a subset of currently active application-servers from the cluster database by a random selection. Allon discloses selecting a subset by a random selection (col. 5, lines 47-61). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Allon with Banks to efficiently determine which computers in the network are able to handle and accept extra processing load while keeping system processing overhead low as supported by Allon (abstract; col. 4, lines 9-11).

18. Referring to claim 6, Banks discloses the method of workload balancing substantively as described in claim 1. Banks furthermore discloses that the server is selected based on a load-balancing decision, however this decision is not done by a server-monitor which determines a subset. Allon discloses choosing a subset from the cluster database based on a load-balancing decision (e.g. abstract). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Allon with Banks to efficiently determine which computers in



the network are able to handle and accept extra processing load while keeping system processing overhead low as supported by Allon (abstract; col. 4, lines 9-11).

19. Referring to claims 3 and 7, Banks discloses the method of workload balancing substantively as described in claim 1. Banks does not disclose choosing the subset of currently active application-server by approximating an even distribution with respect to other subsets of other application-clients. Allon discloses choosing the subset of currently active application-server by approximating an even distribution with respect to other subsets of other application-clients (i.e. a random distribution spread evenly across all nodes) (col. 5, lines 47-61). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Allon with Banks to efficiently determine which computers in the network are able to handle and accept extra processing load while keeping system processing overhead low as supported by Allon (abstract; col. 4, lines 9-11).

20. Claims 11, and 12 are rejected for similar reasons as stated above.

21. Referring to claim 13, Banks discloses in the event an additional application-server has become active, said server-monitor takes the initiative of sending an update of said subset of currently active application-servers (Figure 3; p. 7, lines 1-40).

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22. Claims 18-23, 27-29, 31, 34-39, 43-45, and 47 are rejected for similar reasons as stated above.

Claims 15, 31, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banks in view of Allon as stated above and further in view of Prakash et al. (USPN 6,434,626) (hereinafter Prakash).

23. Referring to claim 15, Banks in view of Allon disclose the invention substantively as described in claim 4. Banks in view of Allon do not specifically disclose each application-server each comprise a hot pool and each hot pools contains a watchdog monitoring the hot pools activity status and the watchdog is informing the server-monitor on the workload of said monitored application-servers and its current activity status. Prakash discloses another network monitoring method which each server comprises a hot pool (i.e. OSM or Operating System Service Module) and each hot pools has a watchdog monitoring the hot pools activity status (Figures 5-7 and pertinent portions of the disclosure), and each of the watchdogs is informing the server-monitor (i.e. ISM or Intermediate Service Module) on the workload of said monitored application-servers and its current activity status (i.e. healthy/unhealthy). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Prakash with banks and Allon in order to reduce latency caused by numerous point-to-

point messages associated with network performance monitoring in networks as supported by Prakash (e.g. abstract).

24. Claims 31, and 47 are rejected for similar reasons as stated above.

Claims 10, 26, and 42 rejected under 35 U.S.C. 103(a) as being unpatentable over Banks in view of Wolff et al. (USPN 6,076,105) (hereinafter Wolff).

25. Referring to claim 10, Banks discloses the invention substantively as described in claim 1. Banks furthermore discloses selecting said target application-server approximating an even distribution of workload within said subset of currently active application-servers (Banks discloses that the workload is distributed "round-robin" style, p. 7, lines 30-40, which is well known for being an evenly distributed workload distribution algorithm). Banks does not disclose the availability data of the currently active application-servers comprises the application-servers processing power and in addition said application servers work load or observed response time. Wolff discloses another method of workload management wherein the selection of a target application-server comprises using the application-servers workload and processing power (col. 34, lines 8-35). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Wolff with Banks to allow the distribution of processes to function and be managed in a cross platform environment, thereby

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increasing interoperability with other hardware, thereby increasing customer satisfaction as supported in Wolff (col. 2, lines 60-65).

26. Claims 26 and 42 are rejected for similar reasons as stated above.

### ***Conclusion***

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

28. Banks et al. (USPN 5,987,502) discloses workload management in an asynchronous client/server computer system.

29. Mullen et al. (USPN 6,560,649) discloses a hierarchical service level remediation for competing classes based upon achievement of service level goals.

30. Brendel (USPN 6,182,139) discloses client-side resource-based load balancing with delayed-resource-binding using TCP state migration to www server farm.

31. Gulati et al. (USPN 6,597,684) discloses distributed architecture and associated protocols for efficient QoS based route computation.

32. Govett (USPN 5,761,507) discloses client/server architecture supporting concurrent servers within a server.

33. Leymann et al. (USPN 6,681,251) discloses workload balancing in clustered application servers.

34. Agrawal et al. (USPN 4,800,488) discloses propagating resource information in a computer network.

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35. Gehr et al. (USPN 5,828,847) discloses dynamic server switching for maximum server availability and load balancing.


36. Zisapel et al. (USPN 6,249,801) discloses load balancing by redirecting requests to another load balancer on another network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph E. Avellino whose telephone number is (703) 305-7855. The examiner can normally be reached on Monday-Friday 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on (703) 308-5221. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JEA  
July 19, 2004

  
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